

RAILROAD ACCIDENT INVESTIGATION

Report No. 3860

THE PENNSYLVANIA RAILROAD COMPANY

COLUMBUS, OHIO

AUGUST 13, 1959

INTERSTATE COMMERCE COMMISSION

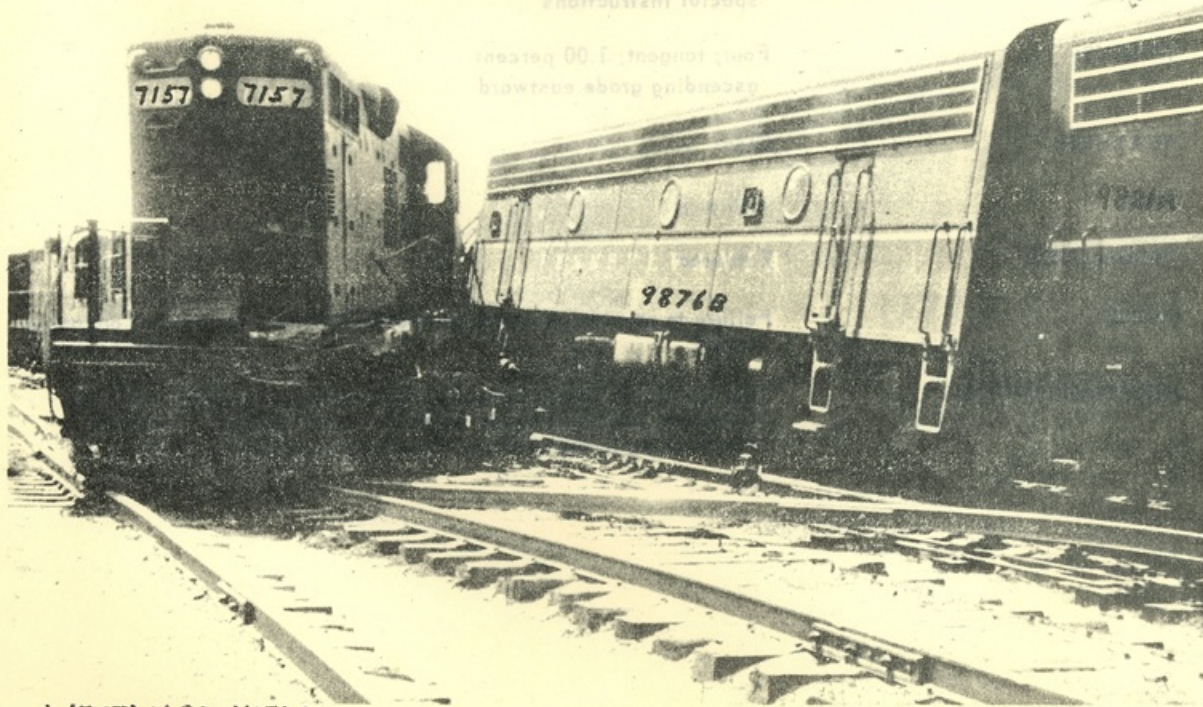
Washington

PLATE 1



EASTWARD VIEW

PLATE 2



WESTWARD VIEW

SUMMARY

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DATE:	August 13, 1959	
RAILROAD:	Pennsylvania	
LOCATION:	Columbus, Ohio	
KIND OF ACCIDENT:	Side collision	
TRAINS INVOLVED:	Freight	Freight
TRAIN NUMBERS:	Extra 7157 East	Extra 9820 West
LOCOMOTIVE NUMBERS:	Diesel-electric units 7157, 7184, 7023	Diesel-electric units 9820A, 9876B, 9821A, 7217, 7151, 7093
CONSISTS:	81 cars, caboose	38 cars, caboose
SPEEDS:	13 m. p. h.	6-8 m. p. h.
OPERATION:	Operating rules and timetable special instructions	
TRACKS:	Four; tangent; 1.00 percent ascending grade eastward	
WEATHER:	Clear	
TIME:	1:20 p. m.	
CASUALTIES:	7 injured	
CAUSE:	Failure to provide adequate protection for the movement of opposing trains	
RECOMMENDATION:	That the Union Depot Company, the Baltimore and Ohio Railroad Company, and the Pennsylvania Railroad Company install an interlocking in the territory where this accident occurred	

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INTERSTATE COMMERCE COMMISSION

REPORT NO. 3860

**IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER
THE ACCIDENT REPORTS ACT OF MAY 6, 1910**

THE PENNSYLVANIA RAILROAD COMPANY

January 21, 1960

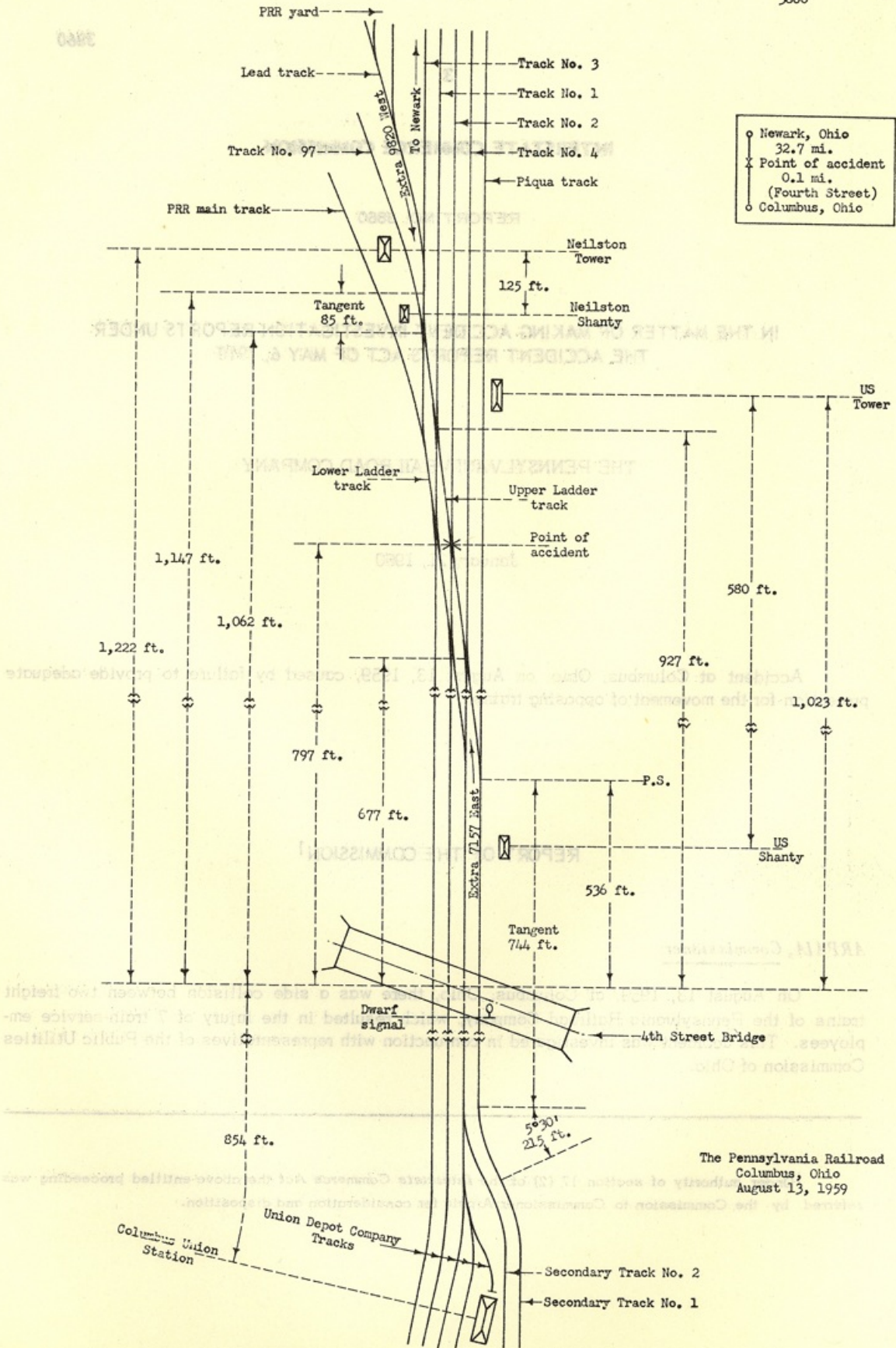
Accident at Columbus, Ohio, on August 13, 1959, caused by failure to provide adequate protection for the movement of opposing trains.

REPORT OF THE COMMISSION¹

ARPAIA, Commissioner:

On August 13, 1959, at Columbus, Ohio, there was a side collision between two freight trains of the Pennsylvania Railroad Company, which resulted in the injury of 7 train-service employees. This accident was investigated in conjunction with representatives of the Public Utilities Commission of Ohio.

¹Under authority of section 17 (2) of the *Interstate Commerce Act* the above-entitled proceeding was referred by the Commission to Commissioner Arpaia for consideration and disposition.



Location of Accident and Method of Operation

This accident occurred on the Columbus and Newark Division which extends between Fourth Street, Columbus, and Newark, Ohio, 32.8 miles, and over which trains of the Pennsylvania (PRR) and the Baltimore and Ohio Railroads are jointly operated. In the vicinity of the point of accident this is a four-track line over which movements are governed by rules of the PRR and timetable special instructions of the Columbus and Newark Division. From north to south the main tracks are designated as tracks Nos. 3, 1, 2, and 4. An auxiliary track, which is designated as the Piqua track, parallels track No. 4 on the south. The station at Columbus is located 854 feet west of Fourth Street, and movements on the station tracks are controlled by the Union Depot Company. In the vicinity of Fourth Street, the west ends of tracks Nos. 1, 2, and 4 are connected to tracks of the Union Depot Company. Two PRR tracks, designated from north to south as Secondary Track No. 2 and Secondary Track No. 1, parallel the Union Depot Company tracks on the south. Secondary Track No. 2 is connected to track No. 4 at a point 103 feet east of Fourth Street, and westward from a point 280 feet east of Fourth Street, Secondary Track No. 1 is a continuation of the Piqua track. Two PRR tracks diverge to the northeast from the four-track line. The track on the east is designated as track No. 97. It is connected by a track designated as the Upper Ladder track, to tracks Nos. 3, 1, 2, and 4, and the Piqua track at points, respectively, 1,062 feet, 927 feet, 797 feet, 677 feet, and 536 feet east of Fourth Street. The track on the west is connected by another ladder track, which is designated as the Lower Ladder track, to tracks Nos. 3, 1, 2, and 4. A PRR yard is located north of the four-track line and east of the ladder tracks. The lead track at the west end of this yard is connected to track No. 3 at a point 1,147 feet east of Fourth Street.

The accident occurred at the crossing of the Upper Ladder track and track No. 2. From the west on Secondary Track No. 1 and the Piqua track there are, in succession, a $5^{\circ}30'$ curve to the right 215 feet in length, and a tangent 744 feet to the switch connecting the Piqua track to the Upper Ladder track. From the east, track No. 3 is tangent for a distance of 85 feet to the Upper Ladder track. In the vicinity of the point of accident, the grade for eastbound trains is 1.00 percent ascending.

No. 10 movable-point double-slip switch crossings are provided at the intersections of the Upper Ladder track and tracks Nos. 3, 1, 2 and 4, and at the intersections of the Lower Ladder track and tracks Nos. 1 and 2. Each crossing is provided with two switch stands of the low-stand ground-throw type, and with two 4-side disc-type targets and switch lamps. When a crossing is lined for movement on the Upper Ladder track, the switch targets and lamps at each crossing will display red aspects for the movement. When a crossing is lined for movement from the Upper Ladder track to a track of the four-track line, the eastern switch target and lamp at the crossing will display red aspects for the movement and the western switch target and lamp at the crossing will display green aspects.

A semi-automatic dwarf signal, governing eastbound movements on Secondary Track No. 1 is located at Fourth Street. This signal is of the position-light type and indicates either Stop or Proceed-at-restricted-speed.

US Tower is located south of the Piqua track at a point 1,023 feet east of Fourth Street, and Neilston Tower is on the north of track No. 97 at a point 1,222 feet east of Fourth Street. Movements over the Upper Ladder track and the Lower Ladder track are governed by the US switchtender and the Neilston switchtender. The US switchtender's shanty is south of the Piqua track at a point

580 feet west of US Tower. The Neilston switchtender's shanty is north of track No. 3 at a point 125 feet west of Neilston Tower. Five speakers of a public address system are located in the vicinity of the ladder tracks. Two of these speakers are attached to the outside of the US and Neilston switchtenders' shantys. Information concerning the approach and movement of trains in the vicinity of the point of accident is transmitted by the operator at US Tower to the switchtenders by means of the public address system.

Fourth Street crosses the tracks by means of a bridge. This bridge materially restricts the view of enginemen of eastbound locomotives on Secondary Track No. 1 when approaching Fourth Street.

The operating rules governing movements on the Columbus and Newark Division read in part as follows:

RESTRICTED SPEED--Not exceeding 15 miles per hour prepared to stop short of train, obstruction or switch not properly lined and to look out for broken rail.

37. Switch tenders will use a yellow flag by day and a yellow light by night to give hand signals unless otherwise specified on the time-table.

104. * * *

Trains and engines must approach switches where switch tenders are stationed prepared to stop clear of any switch or route unless signal to proceed is received from switch tender.

The Columbus and Newark Division timetable special instructions read in part as follows:

11. HAND SIGNALS AND FLAGGING

Location of Switchtenders and operators handling main track switches.

* * *

Columbus:

Neilston: North side of main track.....Switchtender

US Switches: South side of main track.....Switchtender

Referring to Rule 37.

Yellow flag by day and a yellow light by night will govern movements of westward trains.

Green flag by day and a green light by night will govern movements of eastward trains.

* * *

The movement of eastward and westward trains between Neilston and Union Station will be governed by the prescribed hand signals given by switchtender, and trains will not exceed 10 miles per hour.

The maximum authorized speed in the vicinity of the point of accident is 10 miles per hour.

Description of Accident

Extra 7157 East, an eastbound PRR freight train, consisting of road-switcher type diesel-electric units 7157, 7184, and 7023, coupled in multiple-unit control, 81 cars and a caboose, departed from Richmond, Ind., 119.6 miles west of Columbus, at 9:52 a. m., entered Secondary Track No. 1 on its arrival at Columbus, passed the station about 1:15 p. m., and as the locomotive passed a point about 750 feet west of Fourth Street, the US switchtender gave the enginemen a proceed signal by means of a green flag. The train then passed the semi-automatic signal at Fourth Street which indicated "Proceed at restricted speed," entered the Piqua track, entered the Upper Ladder track, and about 1:20 p. m., while moving at a speed of about 13 miles per hour, as indicated by the tape of the speed-recording device, it struck Extra 9820 West at the intersection of the Upper Ladder track and track No. 2.

Extra 9820 West, a westbound PRR freight train, consisted of diesel-electric units 9820A, 9876B and 9821A, coupled in multiple-unit control, a second locomotive consisting of road-switcher type diesel-electric units 7217, 7151, and 7093, coupled in multiple-unit control, 38 cars, and a caboose. This train departed from the PRR yard in Columbus about 1:10 p. m., entered the lead track at the west end of the yard, and after receiving a proceed signal from the Neilston switchtender by means of a yellow flag it entered track No. 3 and then entered the Upper Ladder track. While moving westward at the intersection of the Upper Ladder track and track No. 2 at a speed of 6 to 8 miles per hour, the leading locomotive was struck by Extra 7157 East.

The 1st and 2nd diesel-electric units and the 30th car of Extra 7157 East were derailed. The 1st and 2nd units were somewhat damaged and the 3rd unit was slightly damaged. The 30th, 31st, and 32nd cars were somewhat damaged.

The 1st and 2nd diesel-electric units of Extra 9820 West were derailed. The 1st unit of the first locomotive was somewhat damaged, and the 2nd unit of this locomotive and all units of the second locomotive were slightly damaged.

The derailed diesel-electric units of both trains stopped in positions as shown in PLATES 1 and 2. The engineer, the fireman, and the front brakeman of Extra 7157 East were injured. The engineer of the leading locomotive, the firemen of both locomotives, and the front brakeman of Extra 9820 West were also injured.

The weather was clear at the time of the accident, which occurred about 1:20 p. m.

During the 30-day period immediately preceding the day of the accident, the average daily movement in the vicinity of the point of accident comprised 142.8 train and yard movements.

Discussion

Train and yard movements in the immediate vicinity of the point of accident are routed by the US and Neilston switchtenders in accordance with information received from the operator at US Tower by means of a public address system. The US switchtender controls, among others, the switch connecting the Piqua track to the Upper Ladder track and the crossing of the Upper Ladder track and track No. 4. The Neilston switchtender controls, among others, the switch connecting the lead track at the

west end of PRR yard to track No. 3, and the crossings of the Upper Ladder track and tracks Nos. 3, 1, and 2. In daytime, the switchtenders are required to use yellow flags to give signals governing westbound movements, and green flags to give signals governing eastbound movements, over switches and crossings within their respective jurisdictions. Under these circumstances, a proceed signal given with a green flag, received from the US switchtender, authorizes an eastbound train routed from Secondary Track No. 1 to track No. 2, via the Piqua and Upper Ladder tracks, to proceed only to the clearance point of the slip switch crossing of the Upper Ladder track and track No. 2. This train may not foul or enter upon this crossing and proceed on track No. 2 until a proceed signal, likewise given with a green flag, has been received from the Neilston switchtender.

About 1:00 p. m. on the day of the accident, the operator at US Tower announced over the public address system that a PRR eastbound train was to be routed from Secondary Track No. 1 to track No. 2. About 10 minutes later, he announced that a PRR westbound train was to be routed from the PRR yard to Secondary Track No. 2. As the eastbound train, Extra 7157 East, was approaching Fourth Street, he again announced over the public address system that the train was to be routed from Secondary Track No. 1 to track No. 2. The US switchtender said that when he heard the first announcement concerning Extra 7157 East, he lined the route for movement of that train from Secondary Track No. 1 to the crossing of the Upper Ladder track and track No. 2, via the Piqua track and the Upper Ladder track. He said that he did not understand clearly the announcement concerning the westbound train, Extra 9820 West, and was unaware that this train was to be routed to Secondary Track No. 2 until after the accident occurred. He said that as Extra 7157 East approached Fourth Street he used a green flag to give it proceed signals, which the engineer acknowledged by sounding two blasts of the locomotive horn. The Neilston switchtender, who controls movements over the crossing of the Upper Ladder track and track No. 2, said that he did not hear either announcement concerning Extra 7157 East, but heard the operator at US Tower announce that a PRR westbound train was to be routed from the PRR yard to Secondary Track No. 2. He said that he then lined that part of the route within his jurisdiction for the movement of Extra 9820 West from the PRR to Secondary Track No. 2, via track No. 3, the Upper Ladder track, track No. 2, the Lower Ladder track, and track No. 4. As this train approached track No. 3, the Neilston switchtender used a yellow flag to give proceed signals, which were promptly acknowledged by the prescribed signal on the locomotive horn. The Neilston switchtender said that he then proceeded to the switchtender shanty provided for his use, and that he was at this location when the accident occurred. He said that he had not seen Extra 7157 East and was unaware that it was approaching, and that he had not at any time given a proceed signal intended for the movement of that train before the collision occurred.

As Extra 7157 East was approaching Fourth Street on Secondary Track No. 1, the speed was about 13 miles per hour as indicated by the tape of the speed-recording device. The enginemen were in the control compartment of the first diesel-electric unit and the front brakeman was in the control compartment of the third unit. The conductor and the flagman were in the caboose. The brakes of this train had been tested and had functioned properly when used en route. The engineer said that the semi-automatic signal at Fourth Street indicated Proceed-at-restricted speed and that as the locomotive passed a point about 750 feet west of Fourth Street he sounded the locomotive horn to call for a signal from the US switchtender. He said that the US switchtender immediately gave proceed signals with a green flag and then held up two fingers and orally informed him as the locomotive passed that the train was routed to track No. 2. The engineer acknowledged the proceed signals on the locomotive horn. He said that as the locomotive was moving under the bridge at Fourth Street a proceed signal given with a green flag was received from the Neilston switchtender and that he also acknowledged this with the prescribed signal on the locomotive horn. The fireman

said that he was unable to see either the US switchtender or the Neilston switchtender at the time these acknowledging signals were sounded but the engineer informed him that proceed signals had been received from both switchtenders. The Neilston switchtender's shanty came into view of the fireman when the locomotive emerged from under the Fourth Street bridge. He said that at that time he observed the Neilston switchtender standing on the north side of the shanty and that he did not at any time see him give a signal. The fireman said that when he informed the engineer that their train was routed toward track No. 2, the engineer replied that he previously had received proceed signals from the Neilston switchtender. When the train entered the Upper Ladder track the fireman observed that the route was lined for entrance to track No. 2. He said that when he observed Extra 9820 West approaching and then realized that it was moving on a conflicting route which converged with the route of his train at the crossing of the Upper Ladder track and track No. 2, he immediately operated the emergency brake valve adjacent to his position in the control compartment and applied the brakes of the train in emergency. However, the collision occurred before the speed of the train had been materially reduced.

As Extra 9820 West was approaching the Upper Ladder track the engineers of the two locomotives were in the control compartments in the first unit of their respective locomotives. The fireman of the first locomotive, a qualified engineer, was operating that locomotive. The front brakeman was in the control compartment of the rear unit of the first locomotive, and the conductor and the flagman were in the caboose. The brakes of this train had functioned properly when tested prior to departure. The engineer of the first locomotive said that as the train moved westward on the lead track as it departed from the PRR yard a proceed signal given with a yellow flag was received from the Neilston switchtender, who was standing in the immediate vicinity of the Neilston switchtender shanty. Extra 9820 West then entered track No. 3, proceeded westward, and entered the Upper Ladder track at a speed of 6 to 8 miles per hour. Both engineers of the first locomotive observed Extra 7157 East throughout a considerable distance as it was approaching west of the point of accident, but they were unaware that it was moving on a conflicting route until the locomotive of that train was about 50 feet distant. The fireman of the first locomotive said that he placed the brake valve in emergency position a few seconds before the locomotives collided. He said that the Neilston switchtender had been continuously within his range of vision until the first locomotive passed the Neilston switchtender's shanty. Both the engineer and the fireman of this locomotive said that they did not at any time see the Neilston switchtender use a green flag to give proceed signals to Extra 7157 East as that train approached.

Since movements over the crossing where the accident occurred are governed by the Neilston switchtender, Extra 7157 East was required to be stopped short of this crossing unless or until a proceed signal given with a green flag was received from the Neilston switchtender. The Neilston switchtender was not aware that this train was closely approaching and immediately before the accident occurred he gave proceed signals with a yellow flag to authorize the movement of Extra 9820 West over the crossing. At this time the locomotive of Extra 7157 East was moving under the Fourth Street bridge and it was in this vicinity that the engineer sounded the locomotive horn in acknowledgement of a signal. As Extra 9820 West simultaneously was receiving a signal to proceed and no other movement was then being authorized by the Neilston switchtender it is apparent that the engineer of Extra 7157 East mistook this signal as being intended for the movement of his train. As a result, Extra 7157 East continued to move eastward until it fouled the route which had been established for the movement of Extra 9820 West and collided with that train.

After the accident occurred, tests were made to determine the audibility of the public address system. These tests disclosed that announcements could not be understood near locations

of the five speakers while train or yard movements were being made nearby. If no train or yard movement was in progress near the locations of the speakers, announcements could be understood. On the day of the accident, a freight train approached the crossing of the Lower Ladder track and track No. 1 at 1:05 p. m. and cleared the crossing at 1:11 p. m.

The investigation disclosed that on the tracks in the area over which the switchtenders authorize train and engine movements by flag or lamp signals, the selection of the route to be used by such movements is left to the discretion of the switchtenders. The switchtenders receive information from the operator only as to the point or the track from which the train or engine to be moved over the territory will enter the area, and the track or territory to which it is destined. In the instant case although the operator twice announced the approach of Extra 7157 East, the Neilston switchtender said that he did not hear either announcement and that he was unaware of the approach of this train. The US switchtender said that the announcement relative to movement of the west-bound train was not clearly heard and he could not distinguish the details relating to the movement of Extra 9820 West. As a result these employees did not have a common understanding of the impending movements and although both Extra 7157 East and Extra 9820 West could have been simultaneously moved through this area over routes which did not conflict, if their movements had been properly coordinated, both trains were routed over the crossing where the accident occurred. Conflicting movements are not permitted to occupy an interlocking route and protection against movements on conflicting routes is provided in an interlocking. If similar protection had been provided for the trains involved at this point, this accident would have been averted.

Following the investigation of an accident caused by a double-slip movable-center-point crossing being improperly lined for the movement intended which occurred on the line of the Union Depot Company at a point 220 feet east of Fourth Street, on June 7, 1948, this Commission recommended that the Union Depot Company and the carriers here involved install an interlocking in the territory where the accident occurred. Since that date four other collisions have occurred on tracks of the Union Depot Company and five collisions have occurred on trackage between Fourth Street and Neilston Tower. These accidents have resulted in the injury of passengers and employees. The continued failure of the carriers involved to comply with the Commission's earlier recommendation has not lessened the hazards of the present method of operation in this territory. Considering the density of traffic and the frequency and complexity of movements in this territory, it is evident that adequate provision for the safety of travelers and employees upon the railroads involved requires the installation of an interlocking at this point.

Cause

This accident was caused by failure to provide adequate protection for the movement of opposing trains.

Recommendation

It is recommended for a second time that the Union Depot Company, the Baltimore and Ohio Railroad Company, and the Pennsylvania Railroad Company install an interlocking in the territory where this accident occurred.

These carriers having failed to comply with a prior recommendation that an interlocking be installed in the territory under consideration and this Commission having found that such installation is necessary in the public interest, appropriate action will be initiated to carry the above recommendation into effect.

Dated at Washington, D. C., this twenty-first
day of January, 1960.

By the Commission, Commissioner Arpaia.

(SEAL)

HAROLD D. McCOY,

Secretary.

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WASHINGTON, D. C.

Interstate Commerce Commission

Washington 25, D. C.

OFFICIAL BUSINESS

RETURN AFTER FIVE DAYS

**POSTAGE AND FEES PAID
INTERSTATE COMMERCE COMMISSION**

Filed at Washington, D. C. this twenty-first day of January, 1960.

By the Commission, Commissioner Arthur

HAROLD D. MCCOY

Secretary

(SEAL)

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